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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,579	07/29/2003	Mark C. Carroll	22129-00007-US1	4098

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EXAMINER	
MORILLO, JANELL COMBS	
ART UNIT	**PAPER NUMBER**
1742	

MAIL DATE	DELIVERY MODE
08/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/628,579	CARROLL ET AL.	
	Examiner	Art Unit	
	Janelle Combs-Morillo	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4,7,9,16,22,24,38,39 and 42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4,7,9,16,22,24,38,39 and 42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Interpretation

1. The instant claims are drawn to a modified AA5083 alloy, wherein the Aluminum Association's 5083 specification is as follows:

4.0-4.9% Mg
0.05-0.25% Cr
0.4-1.0% Mn
0.25% Zn max.
0.10% Cu max.
0.40% Si max.
0.40% Fe max.
0.15% Ti max.
0.05% other each
0.15% other total
balance aluminum

2. Instant independent claims 4, 7, and 9 are drawn to Al-Mg alloys, wherein (amended) claim 4 recites the transitional phrase "having", claim 7 recites "comprising", and claim 9 recites "consisting essentially of" various alloying ranges. Transitional phrases such as "having" must be interpreted in light of the specification to determine whether open or closed claim language is intended. See, e.g., Crystal Semiconductor Corp. v. TriTech Microelectronics Int 'l Inc., 246 F.3d 1336, 1348, 57 USPQ2d 1953, 1959 (Fed. Cir. 2001) (term "having" in transitional phrase "does not create a presumption that the body of the claim is open"); Lampi Corp. v. American Power Products Inc., 228 F.3d 1365, 1376, 56 USPQ2d 1445, 1453 (Fed. Cir. 2000) (The term "having" was interpreted as open terminology, allowing the inclusion of other components in addition to those recited); Regents of the Univ. of Cal. v. Eli Lilly & Co., 119 F.3d 1559, 1573, 43 USPQ2d 1398, 1410 (Fed. Cir. 1997). In the instant case, though "having" in transitional phrase "does not create a presumption that the body of the claim is open", in view of the instant

specification, "having" is interpreted as open terminology, allowing the inclusion of other components in addition to those recited (such as Ag, see [00049] where Ag is taught as optional, see [00054] where Ag is taught as also forming beneficial tau phase, etc of specification).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 4, 7, 9, 38, 39, 42 are rejected under 35 U.S.C. 102(b) as being anticipated by "Compositional Changes to tau-phase grain boundary precipitates in the presence of minor levels of Ag and Ag+Cu in modified 5083 aluminum alloys", Electrochemical Society Proceedings, 2000, Carroll et al.

Carroll teaches a modified 5083 alloy with: 0.60% Zn, 0.13% Cu, 0.10% Ag (p 356), or 0.55% Zn, 0.10% Cu, 0.20% Ag (p 359), wherein said alloy is subject to a sensitization treatment thereby obtaining the quaternary τ-phase at the grain boundaries (p 362), substantially as presently claimed. Concerning the amended transitional phrase of instant claim 4, as stated above, 'having' does not clearly exclude Ag from the instant Al-Mg alloy composition. Concerning the open 'comprising' type claim language (which does not exclude Ag), and 'consisting essentially of' type claim language of independent claims 7 and 9, the transitional phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristic(s)" of the claimed

invention. In re Herz, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976). The applicant has not shown that the addition of Ag would affect the basic and novel characteristics of the presently claimed alloy composition.

Carroll does not mention the temperature for sensitization, however, with respect to the product by process, applicant has not shown a material difference between sensitizing at 80-200 °C as claimed, and the sensitized aluminum alloy taught by Carroll (see p 362, etc). Therefore it is held that Carroll anticipates the presently claimed invention.

Concerning claim 38, 39, which mention various properties related to said τ-phase or the sensitization treatment, because Carroll teaches an example within the instantly claimed alloying ranges, and wherein said alloy is subjected to a sensitization treatment, then substantially the same effects, such as simulation of actual conditions of use, is held to be inherently present. Because Carroll teaches an identical alloy processed substantially as presently claimed, then substantially the same properties, such as mass loss or elongation, are expected to be inherently present.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4, 7, 9, 16, 22, 24, 38, 39, 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haszler (US 6,342,113).

Haszler teaches Al-Mg alloy comprising (in wt%): 5-6% Mg, 0.6-1.2% Mn, 0.4-1.5% Zn, 0.05-0.25% Zr, max. 0.3% Cr, max. 0.4% Cu, max. 0.4% Ag (column 2 lines 64-66, column 3 lines 1-9), which overlaps or touches the boundary of the presently claimed alloying ranges of Mn, Zn, Zr, Cr, Cu, Ag and is a close approximation of the presently claimed range of Mg (AA registered alloy 5083 contains 4.0-4.9% Mg).

A prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). Because Haszler teaches alloying ranges that overlap, or are a close approximation of the presently claimed alloying ranges, it is held that Haszler has created a prima facie case of obviousness of the presently claimed invention.

Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility.

Concerning claims 4, 7, 42, which mention a tau phase or a sensitization treatment (and/or properties related to said phase or treatment), Haszler mentions said Al-Mg alloy is exposed to temperature of 100°C (ex. 3 of Haszler, see esp. column 10 lines 47-50), which simulates the actual service temperature, which falls within the presently claimed heat treatment temperature. Additionally, Haszler teaches heat treating at a minimum temperature of 200°C, which touches the boundary of the presently claimed heat treatment maximum.

The examiner asserts that where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). Therefore, if the prior art teaches a substantially identical chemical structure, the properties applicant discloses and/or claims (tau phase, mass loss, elongation) are expected to be present. See MPEP 2112.01.

Concerning claims 16, 22, 24, Haszler teaches said alloy is particularly suitable for large welded structures such as storage containers, vessels for marine and land transportation, tanks, etc. (column 1 lines 13-17).

7. Claims 4, 7, 9, 16, 22, 24, 38, 39, 42, are rejected under 35 U.S.C. 103(a) as being unpatentable over "Compositional Changes to tau-phase grain boundary precipitates in the presence of minor levels of Ag and Ag+Cu in modified 5083 aluminum alloys", Electrochemical Society Proceedings, 2000, (hereinafter Carroll) in view of Haszler.

Carroll and Haszler are discussed in paragraphs above.

Concerning claims 4, 7, 42, 43, which mention a tau phase or a sensitization treatment (and/or properties related to said phase or treatment), Carroll does not mention the temperature for sensitization, however, with respect to the product by process, applicant has not shown a material difference between sensitizing at 80-200 °C as claimed, and the sensitized aluminum alloy taught by Carroll (see p 362, etc). Alternatively, Haszler mentions said Al-Mg alloy is exposed to temperature of 100°C (ex. 3 of Haszler, see esp. column 10 lines 47-50), which simulates the actual service temperature, which falls within the presently claimed heat treatment temperature. It would have been obvious to one of ordinary skill in the art to heat the Al-Mg

alloy taught by Carroll to a high temperature such as 100 °C as taught by Haszler, because Haszler teaches said temperature simulates actual service temperature.

Concerning claims 16, 22, 24, Carroll does not mention said alloy is in the form of a marine product, etc. However, Haszler teaches substantially similar 5xxx series aluminum alloys are particularly suitable for large welded structures such as storage containers, vessels for marine and land transportation, tanks, etc. due to their excellent weldability and corrosion resistance (column 1 lines 13-17, column 2 lines 55-57). It would have been obvious to one of ordinary skill in the art to form the 5xxx series alloy taught by Carroll into a large welded structure, such as a marine vehicle, because Haszler teaches substantially similar 5xxx series aluminum alloys are particularly suitable for large welded structures such as storage containers, vessels for marine and land transportation, tanks, etc. due to their excellent weldability and corrosion resistance (column 1 lines 13-17, column 2 lines 55-57).

Response to Amendment

8. In the response filed on June 21, 2007, applicant amended claims 4, 7, 9, 16, 22, 24, submitted various arguments traversing the rejections of record, and submitted a 1.132 declaration traversing the rejections of record.

9. As stated in the office action mailed 12/28/2006, the examiner agrees that the rejections in view of "Effects of minor Cu additions on a Zn-modified Al-5083 alloy" have been overcome (see MPEP 2132.01, Ex parte Kroger, etc.).

10. The declaration under 37 CFR 1.132 filed 6/21/2007 is insufficient to overcome the rejection of claims 4,5,7,9,10,16,22,24,25,38,39,42,43 based upon Haszler as set forth in the last

Office action because: said declaration is drawn to the opinion that Haszler does not teach motivation to form the tau phase, and would not be expected to form the tau phase, which the examiner has not found clearly persuasive.

11. More particularly, declarant states that Haszler teaches 'anodic intermetallics' precipitating in the grains, and containing Zr, and that a continuous grain boundary precipitate is not formed by Haszler. The examiner points out that a continuous grain boundary precipitate is not recited in the instant claims. Further, declarant states that Haszler forms said Zr containing precipitates in the grains and not on the boundary, where the tau phase forms (p 3), but also that Haszler teaches a minimum of 0.4% is preferred to precipitate Zn at the grain boundaries. Applicant has not clearly shown said Zn containing precipitates that are formed by Haszler at the grain boundaries, does not include the tau phase (which is expected by virtue of an overlapping alloy composition of Al-Mn-Zn, and close approximation of Mg, exposure of a temperature within the sensitization treatment range, see above rejection for details).

12. Declarant argues that the final annealing temperature of 250 °C taught by Haszler teaches away from the instant invention, and submitted figures showing the presence of the tau phase at temperatures of 85°C and 200°C (and 5wt% Mg). However, it is unclear that a heat treatment such as that taught by Haszler is above the solutioninzing/ melting temperature of the instant tau phase precipitate (i.e. it is unclear/applicant has not established that the tau phase would clearly be dissolved in solution at said additional heat treatment temperature taught by the prior art).

13. Declarant's argument that the present invention is allowable over the prior art of record because "a goal of the invention of the present application was to precipitate the tau phase at the grain boundaries and therefore improve corrosion resistance. This is not taught or suggested by

Haszler et al" (declaration, p 4) has not clearly been found persuasive. Applicant has not clearly shown the product by process taught by the prior art achieves a materially different product than the instant overlapping product and overlapping sensitization temperature treatment, or that the instant alloy has unexpectedly improved corrosion resistance with respect to the alloy taught by Haszler, etc.

14. Applicant's argument that the present invention is allowable over the prior art of record because Haszler is drawn to ranges of Zn above 0.4%, whereas the tau phase forms for ranges of Zn below said value and the instant inventive alloy is drawn to 0.3-0.6% Zn, and therefore "this indicates Haszler et al. does not provide any motivation at all to produce a tau phase as achieved by the present application" (declaration, p 4) has not been found persuasive. Haszler still teaches a significant overlap in Zn composition in the range of 0.4-0.6%. With respect to said overlap in alloying ranges, complete with an overlapping sensitization temperature treatment taught by the prior art of Haszler, applicant has not shown Haszler would be expected to form distinctly different intermetallics (such as the absence of the tau phase) as compared to the instantly claimed product by process.

15. Applicant has not clearly shown specific unexpected results with respect to the prior art of record or criticality of the instant claimed range (wherein said results must be fully commensurate in scope with the instantly claimed ranges, etc. see MPEP 716.02 d).

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HUY KING
SUPERVISORY PATENT EXAMINER
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JCM
August 16, 2007